

the Bishop's own mind, for he continues (see above): "This opinion has some probability, and that strange effect is really owing to this cause in some places." But, being under the thrall of the Kraken, the gigantic cephalopod which, like "Dead Water," abounded in the fiords of his country, he finally concludes that it, under the name Kors-Trold or Soe-Drawl, is the effecting agent in ship-detention.

III.—*Systematic Notes on a few Melolonthine Coleoptera.*
By GILBERT J. ARROW.

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[Plate I.]

THE following descriptions and notes have been put together in the course of working out the nomenclature of certain species of Melolonthinæ injurious to crops in different regions. The types of the species described as new are in the British Museum.

In his 'Report on *Phytalus smithi*, Arrow, and other Beetles injurious to Sugar-cane in Mauritius' Mr. d'Ennerez de Charmoy refers to certain Lamellicorn beetles to which no precise names could be given. These were subsequently sent to me for identification, but, owing to uncertainty as to whether they were imported or indigenous, I deferred their determination at that time. Having failed to obtain sufficient evidence of their occurrence elsewhere, I have now described them, their economic importance rendering the absence of recognized names highly inconvenient.

In the Report above mentioned the name *Gymnogaster buphthalma*, Bl., is applied to certain cane-feeding grubs. The beetles sent to me as probably belonging to that species are two different forms, both of them apparently unnamed hitherto. *G. buphthalmus* is an inhabitant of the island of Bourbon, and in all probability is not found elsewhere. Although it has a close superficial resemblance to the insect I here call *Rhizotrogus pallens*, there are important anatomical differences in the reduction of the biting parts of the mouth and the existence of five, instead of three, joints in the antennal club. No other species of *Gymnogaster* is known.

Rhizotrogus gravis, sp. n. (Pl. I. fig. 4.)

Læte flavus, capite fusco-rufo, pronoto (lateribus exceptis), antennis tarsisque rufis; oblongus, nitidus, glaber, pectore pedibusque sat longe flavo-hirsutis, capite crebre et rugose punctato, absque carinis, clypeo parvo, excavato, margine antice recto, lateraliter fortiter arcuato; pronoto sat crebre et fortiter punctato, linea media fere lævi, lateribus medio fortiter dilatatis, deinde ad angulos fere rectis, his obtusis, margine antico toto ciliato, postico leviter trisinuato, marginato; scutello parce punctato; elytris crebre et fortiter punctatis, costa suturali valida aliisque angustis parum distinctis; pygidio parce haud fortiter punctato; antennis 10-articulatis, articulis 3-7 regulariter decrescentibus; tibiæ anticæ dente tertio minutissimo, unguibus subtus medio dente recto armatis; mento postice carina V-formi instructo, antice excavato.

Long. 25-27 mm.; lat. max. 13-15 mm.

N.E. MAURITIUS: Bassin.

An old specimen of this species in the British Museum bears the locality "Florida," for which reason I at first believed it to have been, like *Phytalus smithi*, imported into Mauritius; but I have failed on enquiry to find any evidence of its occurrence in America, nor has it by any abnormal increase shown the usual indication of an introduced insect.

The colour is a bright tawny yellow, paler beneath, with the pronotum red, except at the sides, and the head very dark red.

The male is rather elongate and parallel-sided, the female shorter and more dilated behind, and both rather shining (except upon the head, which is densely punctured and rugose), free from hair upon the upper surface, but with long and thick yellow pubescence upon the metasternum. The eyes are large and prominent, the clypeus rather small, hollowed, with continuous reflexed margin, straight in front and rounded at the sides. The pronotum is moderately punctured, with an indefinite longitudinal smooth space in the middle, with the lateral margins strongly dilated in the middle and nearly straight from there to the front and hind angles, which are obtuse. The elytra are closely and evenly punctured, with a prominent smooth sutural costa of nearly equal breadth throughout and exceedingly narrow and feeble vestiges of three or four other costæ. The pygidium is much less closely punctured. The uppermost (third) tooth of the front tibia is very feeble and the claws bear a strong vertical tooth at the middle of the lower edge. The antennæ are 10-jointed, joints 3 to 7 progressively diminishing in length.

The male is much less massive than the female, with the club of the antenna as long as the footstalk, all the tarsi long and slender, and the abdomen longitudinally channelled beneath.

Larvæ found feeding at the roots of cane have been sent to me together with adult females of this species.

Rhizotrogus pallens, sp. n. (Pl. I. fig. 1.)

Pallide flavus, capite fusco-rufo, tarsis pronotique medio plus minusve rufescentibus; oblongus, nitidus, glaber, pectore pedibusque sat longe flavo-hirsutis, capite fortiter et confluentur punctato, absque carinis, clypeo excavato, margine reflexo, medio subtiliter exciso, lateraliter fortiter arcuato; pronoto inæqualiter, haud crebre, punctato, lateribus medio fortiter dilatatis, deinde ad angulos omnes fere rectis, his obtusis, margine antico toto ciliato; scutello fere impunctato; elytris haud fortiter aut dense punctatis, costa suturali angusta; pygidio sparse erecte setoso; tibia antica tridentata, unguibus medio dente erecto armatis; mento postice carina semicirculari instructo.

Long. 23-27 mm.; lat. max. 11-14 mm.

S.E. MAURITIUS: Ebène Sugar Estate, near Réduit.

This is closely related to *R. gravis* and has a marked superficial resemblance to *Gymnogaster bupthalmus*, Bl., from which it is easily distinguished by its 3-jointed antennal club. It is narrower than *R. gravis*, paler in colour, and less strongly and closely punctured upon the pronotum and elytra. The clypeus is a little larger, feebly sinuated in the middle of its margin, and the eyes are a little smaller. The pronotum is rather flat and sparsely punctured, with its sides still more strongly angulated in the middle and straight from there to the front and hind angles, which are obtuse. The scutellum is almost smooth and the elytra are lightly punctured and very shining, with a narrow sutural costa only. The pygidium bears a thin clothing of erect hairs, but is scarcely visibly punctured. The mentum bears a semicircular (not V-shaped) carina and the uppermost tooth of the front tibia is more distinct than in *R. gravis*. The claws are similar.

As in the allied species, the male is more slenderly built than the female, with the abdomen channelled beneath and the tarsi longer. The club of the antenna is longer than in the male of *R. gravis*, and the seventh joint is produced into a short but distinct lamella.

Rhizotrogus rufus, sp. n. (Pl. I. fig. 2.)

Læte castaneo-rufus, capite obscuriori abdomineque pallide flavo; sat late ovatus, nitidus, glaber, pectore dense fulvo-hirsuto; capite dense fortiter punctato, fronte rugosa, clypeo parvo, margine integro, arcuato, reflexo; pronoto crebre et minute punctato, margine laterali crenulato, ante medium angulato, dein ad angulum anticum et posticum fere recto, hoc fere quadrato, illo paulo producto; scutello lato, lævi; elytris subtiliter parum æqualiter punctatis, margine suturali costisque discoidalibus duabus vix perspicuis lævioribus; pygidio subtiliter sat crebre punctato; pedibus parum gracilibus, tibiis anticis robustis, 3-dentatis, unguibus fortiter arcuatis, medio valde dentatis:

♂, clava antennali duplo longiori quam stipitem; unguorum dente paulo post medium sito; pygidio leviter convexo:

♀, clava antennali quam stipitem multo breviori; unguorum dente paulo ante medium sito; pygidio deplanato, apice leviter porrecto.

Long. 14–16 mm.; lat. max. 9 mm.

NILGIRI HILLS: Dodabetta, 8000 ft. (May), Ootacamund (April).

This insect has been sent to me by Mr. T. V. Ramakrishna Ayyar, who found it in large numbers just beneath the surface-soil in plantations of cinchona seedlings.

It is moderately short and broad in shape, very smooth and shining, with the metasternum densely clothed with rather long tawny hair. The legs are not very long, the front tibiæ rather short and armed with three strong but not sharp teeth, separated by acute notches. The clypeus is small, very strongly and closely punctured, with the margin regularly rounded and entire, and the forehead rugose, the punctures coalescing, carinate at its posterior limit. The pronotum is broad, not very convex, closely and rather evenly punctured, with its lateral margins crenulated, angulated in the middle, and nearly straight from there to the front and hind angles, of which the former is a little produced and the latter a right angle. The scutellum is broad and almost unpunctured. The elytra are finely and moderately closely punctured, with the sutural margins and two indistinct discoidal costæ smoother. The pygidium is also finely and moderately closely punctured. The antennæ are 10-jointed, joints 3–7 very short and transverse in the male and 8–10 forming a very long club more than twice as long as the entire footstalk. In the female joints 3 and 4 are a little longer than wide and the club is very short. The basal joint

of the hind tarsus is slightly longer than the following one, and the claws are strongly curved and toothed in the middle.

The male is easily recognizable by the exceptional length of the antennal club, and another slight but important difference is found in the claws, in which the tooth is placed nearer to the tip in the male than in the female.

I have used the generic name *Rhizotrogus* because it is the oldest of the various names in use for the immense and almost world-wide series of species to which these three insects belong, although that name is generally restricted to species from the Palæarctic region. The classification of these insects is very largely a geographical one at present, and species from the Oriental region are referred to *Holotrichia*, those from America to *Lachnosterna*, while those from the Palæarctic, African, and Madagascan areas have been distributed under very numerous names, some of which are no doubt well justified, but the maintenance of others must necessitate the introduction of a very large number of fresh generic names for the forms yet undescribed and conforming to none of the feebly differentiated diagnoses formulated by Brenske, Reitter, and Kolbe. The handling of the extremely difficult generic problem by artificially limited geographical groups enables genera to be defined in terms which are found inapplicable when entire natural groups come to be investigated. Reitter, for instance, studying Palæarctic forms, has divided the genera of the present group into two sections according to the situation of the tooth upon the claws *before* or *behind* their middle, one section being represented by *Rhizotrogus* and the other by *Holotrichia*. As thus defined, the male of the species last described would be referred to the *Holotrichia* section and the female to the *Rhizotrogus* section. The many forms in which the tooth is placed precisely in the middle completely bridge the two groups and render their generic separation impossible. Pending a general revision, therefore, it seems to me best to accept only those genera which appear to be exactly defined, and to regard as a single genus the great mass of species at present called *Rhizotrogus*, *Holotrichia*, or *Lachnosterna*.

Two species, not closely related, were described by Waterhouse from the island of Rodriguez under the name of *Lachnosterna*. *L. rodriguezi*, Wat., is a very peculiar insect belonging to no known genus. Unfortunately the two specimens are in an extremely imperfect state, so that it is not yet possible to state all its distinctive features; but,

although its proper systematic position must remain in doubt, enough can be stated for its ready recognition.

MASCARENA, gen. nov.

Elongate and rather depressed in shape. Head broad, with the clypeus extremely short and subacuminate in the middle. Labrum broad, produced vertically downwards on each side, the two lobes long and wide apart, the median part slightly produced. Mandibles strong and exposed. Mentum excavated externally, deeply excised in front, with the palpi attached to the outer face. Third and fourth joints of the antenna equal and moderately short (the remainder wanting). Legs slender, with the front tibia rather feebly tridentate and the claws long, toothed before the middle.

The tarsi of the male are very long, the claws longer than in the female and the tooth much shorter.

The second species from Rodriguez referred by Waterhouse to *Lachnosterna* (*L. gradaria*, Wat.) belongs to the genus *Hoplochelus*. This genus is at present in a state of great confusion. *Empecta* and *Hoplochelus*, very distinct as they are, were mixed together by Blanchard, and, although Brenske has partly unravelled them, the recent Catalogue of Dalla Torre has only increased the confusion. The two genera are easily distinguishable by the different form of the clypeus and labrum and the occurrence of two teeth upon the front tibia in *Empecta*, instead of three as in *Hoplochelus*. The former genus is allied to *Apogonia* and the latter to *Rhizotrogus*. The typical species of *Hoplochelus* is *H. rhizotrogoides*, Bl., and the others known to me are *piligera*, Bl., *micantipennis*, Bl., *semirufus*, Fairm., and *gradaria*, Wat. "*Enaria*" *adusta* and *albosparsa*, of Fairmaire, belong to *Empecta*.

Fairmaire has described as *Empecta nudiplaga* a form which he distinguishes from *E. marginalis*, Fairm., by certain features, all of which, although he was not aware of it, are merely characters of the female of *Hoplochelus micantipennis*, Bl. Both the above names are therefore evidently synonyms of the last. *Empecta betanimena*, Kunck., attributed to this species in Alluud's Catalogue, is really *Hoplochelus semirufus*, Fairm.

Much of this confusion would have been avoided by the simple observation of the features distinctive of the sexes. It appears never to have been noticed that a sparser clothing

and puncturation of the upper surface are characteristic of the females of both the genera in question. This is especially striking in the following new species:—

Empecta disparilis, sp. n. (Pl. I. fig. 3.)

Nigra, elytris pedibusque rufescentibus, corpore toto squamis minutis vestito (maris supra dense), elytrorum humeris et epipleuris scutellique lateribus et linea mediana nudis, pectore haud dense fulvo-hirsuto; elongato-ovata, capite dense rugoso, margine antica lævissime arcuata, haud excisa; pronoti lateribus fortiter bisinuatis, antice valde approximatis, angulis anticis acute productis, posticis obtusis; pygidio crebre punctato-rugoso et setoso:

♂, corpore supra toto opaco, densissime flavo-squamoso, pedibusque omnibus gracilibus:

♀, corpore supra modice nitido, grosse punctato, punctis squamiferis, pedibus posticis multo brevioribus.

Long. 17–19 mm.; lat. max. 9–10 mm.

MADAGASCAR: Diego Suarez.

The difference between the sexes is very strongly marked. The male is entirely opaque above and densely clothed with perfectly uniform yellow scales. The female is more shining, the pronotum covered with large dense punctures each containing a scale, and the elytra rather coarsely punctured, each puncture similarly giving rise to a scale, and the punctures of the inner half tending to coalesce transversely. The posterior half of the pygidium is also more coarsely punctured and shining in the female, and the hind legs are much shorter and stouter than in the male.

Lepidiota flavimargo, sp. n.

Fusca, corpore supra et subtus dense albo-squamoso, elytris rufescentibus, lateribus pallidioribus, denudatis, squamis nonnullis minutis parce ornatis; elongato-ovalis, undique coriaceo-punctata, elytrorum lateribus exceptis, clypeo haud lato, margine antica medio lævissime sinuata, prothoracis lateribus serratis, antice fere rectis, post medium arcuatis, angulis omnibus obtusis, pygidio postice leviter sulcato, mesosterno medio compresso, vix producto:

♂, tibiis anticis bidentatis, tibiarum posticarum calcaribus angustis, spinosis:

♀, tibiis anticis tridentatis, tibiarum posticarum calcaribus latissimis, spatulatis, extremitatibus translucens.

Long. 39–52 mm.; lat. max. 20–26 mm.

BRIT. N. BORNEO: Sandakan (*C. V. Creagh, W. B. Pryer*), Sarawak (*J. C. Moulton*).

This is a species closely related to the very abundant *L. stigma*, F., of the Malay Peninsula and Java, which is apparently not found in Borneo. The females of that species strongly resemble the present insect, but the latter can be at once distinguished by the sharply defined yellow or reddish lateral borders of the elytra, almost denuded of scales. The border occupies about one-eighth of the width of the elytron, is paler than the remaining surface, smooth and shining, and bears only a few minute scales, whereas the remaining surface of the body is closely covered with scales, replaced by short, close-lying yellowish hairs upon the coxæ and the sides of the metasternum. The scales of the upper surface are generally pure white, the elytra each showing three more or less distinct longitudinal lines of scales still more closely crowded than the rest. Upon the head, the sides of the pronotum, and the lower surface of the body the scales are more yellowish.

The two sexes, unlike those of *L. stigma*, are alike in colour, but the female is distinctly larger than the male, its front tibiæ are stouter and bear three well-developed teeth instead of two, and the hind tibiæ are dilated at the end and their spurs broad and spatuliform (much more so than in *L. stigma*), the extremities dilated, rounded, and translucent.

L. munda, Sharp, has similar bare lateral margins to the elytra, but is a smaller insect, more tapering in front, and clothed with yellow scales.

The Dalla Torre Catalogue is entirely wrong in identifying the European *Polyphylla alba* of Pallas and Olivier with the female of *L. stigma* (*Melolontha alba*, F.).

Leucopholis diffinis, Sharp, and *lateralis*, Brenske, are, I believe, synonyms of *L. nummicudens*, Newm. The inconspicuous row of hairs upon the median line of the pronotum seems to occur only in the female (the sex described by Brenske), and is present in one of the two original specimens of Newman. Sharp's two specimens are presumably both females, but very much abraded, so that the clothing could not be described. Brenske appears to have believed Penang to be in Sumatra (Stett. Ent. Zeit. 1896, p. 189).

Another related insect re-named in error is *Lucirrus mellyi*, Guér., which, as I have already recorded, is a Malayan form, not Ceylonese. The elongate palpi, which Brenske believed to characterize a second species (*E. elegans*), is a feature of the male of *E. mellyi*.

Another redundant name for a sexual form may be noted here. Moser has described as *Hoplia thoracica* an insect

from Sarawak, which he compares with the Javan *H. aurantiaca*, Wat. He has overlooked *H. aurata*, Wat., from Sarawak, the type of which is a female, whereas his form is the male of the same species, differing from the female by opaque red scales replacing the glistening golden scales of the female upon the front of the pronotum, the sides of the elytra and the legs.

EXPLANATION OF PLATE I.

Fig. 1. Rhizotrogus pallens, male and female.

Fig. 2. Rhizotrogus rufus, male and female.

Fig. 3. Empecta disparilis, male and female.

Fig. 4. Rhizotrogus gravis, male and female.

The male of each on the left. All natural size.

IV.—*On a small Collection of Mammals from Lumbo, Mozambique.* By OLDFIELD THOMAS.

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THANKS to the generosity of Lord Swaythling, the British Museum has been enabled to acquire a small collection of mammals obtained during the recent East-African campaign by Mr. Arthur Loveridge at Lumbo—a place on the mainland opposite the island of Mozambique, in Portuguese East Africa.

This region has been exceedingly little worked, and, apart from the specimens collected by Peters at Cabaceira, and mentioned in his work on Mozambique, and a few brought home by Dr. Kirk, almost no mammals from it have come into the hands of zoologists.

As a consequence, I have thought it worth while to give a list of the species obtained by Mr. Loveridge.

1. *Crocidura hirta*, Peters.

♀. 236.

This shrew is in changing pelage, and gives a striking example of the peculiar colour-changes described in Mr. Dollman's Monograph* as occurring in the species.

* Ann. & Mag. Nat. Hist. (8) xvi. p. 71 (1915).